

USSN 10/762,300
Art unit 3749
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Amendments to the claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of creating a powder, comprising the steps of:
spraying a carrier liquid containing a powder forming ingredient to form a flow of liquid droplets;
entraining the flow of liquid droplets with a within a concurrent flow of coolant for sufficient time to freeze the liquid droplets into frozen particles; and
drying the frozen particles to form a dry powder.
2. (Original) The method of claim 1 in which the powder forming ingredient is suspended or dissolved in the carrier liquid.
3. Cancelled.
4. (Currently amended) The method of claim ~~[[3]]~~ 1 in which the concurrent flow of coolant is sprayed from a ring nozzle.
5. (Currently amended) The method of claim 1 in which the flow of liquid droplets is injected into a chamber and entrained by flowing coolant injected through porous walls of the chamber.
6. (Original) The method of claim 1 in which the frozen particles are collected on a filter.
7. (Currently amended) The method of claim 6 in which the frozen particles are substantially dried ~~while~~ after being collected on the filter.

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8. (Currently amended) The method of claim 1 in which the flow of coolant has a temperature within a first temperature range during freezing of the liquid particles and a temperature warmer than the first temperature range during drying of the frozen particles.
9. (Original) The method of claim 1 in which the carrier liquid contains more than one powder forming ingredient.
10. (Currently amended) A method of creating a powder within a chamber, the method comprising the steps of:
providing a flow of liquid droplets containing a powder forming ingredient to form a flow of liquid droplets; ~~and~~
treating the liquid droplets with a flow of coolant inside the chamber to freeze the liquid droplets to form frozen particles prior to deposition;
depositing the frozen particles on a collector; and
dry after deposition of the frozen particles, drying the deposited frozen particles, and
~~thus to form a dry~~ powder.
11. (Original) The method of claim 10 in which flow of coolant is concurrent with the flow of liquid droplets.
12. (Currently amended) The method of claim 10 in which flow of coolant for drying frozen particles is in co-direction with ~~the~~ gravity.
13. (Original) The method of claim 10 in which the flow of coolant prevents adherence of liquid droplets to walls of the chamber.
14. (Original) The method of claim 10 in which the flow of liquid droplets contains more than one powder forming ingredient.

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15. (Currently amended) Apparatus for atmospheric spray freeze drying of an ingredient carrying liquid to form a powder, the apparatus comprising:
a chamber having an atomizer at one end of the chamber, the atomizer being connected to a source of the ingredient carrier liquid to produce a flow of liquid droplets;
an injection ~~a nozzle~~ system for providing a flow of coolant that entrains ~~atomized fluid~~ liquid droplets sprayed by the atomizer;
a source of coolant for the injection ~~nozzle~~ system; and
a collector spaced from the atomizer sufficiently that liquid droplets atomized by the atomizer are frozen by the flow of coolant before contact with the collector.
16. (Currently amended) The apparatus of claim 15 in which the injection ~~nozzle~~ system and atomizer are oriented to provide concurrent flows of coolant and liquid droplets.
17. (Currently amended) The apparatus of claim 16 in which the injection ~~nozzle~~ system comprises a ring nozzle surrounding the atomizer.
18. (Currently amended) The apparatus of claim 17 in which the injection ~~nozzle~~ system is arranged around a porous wall defining a flow chamber through which the flow of ~~liquid droplets~~ coolant passes.
19. (Original) The apparatus of claim 15 in which the collector is a filter at an exit from the chamber.
20. (Original) The apparatus of claim 19 in which the atomizer and collector are at opposed ends of the chamber.
21. (New) The method of claim 1 in which the coolant is a gas.
22. (New) The method of claim 21 in which the coolant is a gas formed by vaporization of a cold liquid.

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23. (New) The method of claim 22 in which the cold liquid is liquid nitrogen.
24. (New) The method of claim 5 in which the porous walls of the chamber comprise side walls, and the carrier liquid is sprayed from a first end of the chamber.
25. (New) The method of claim 24 in which the frozen particles are collected on a filter at an end of the chamber opposed to the first end, and dried on the filter.
26. (New) The method of claim 10 in which the coolant is a gas.
27. (New) The method of claim 26 in which the coolant is a gas formed by vaporization of a cold liquid.
28. (New) The method of claim 27 in which the cold liquid is liquid nitrogen.